

Amendments to the Specification:

Please replace paragraph [061] with the following amended paragraph:

$$[061] \quad \mathbf{E} \cdot \nabla \mathbf{E} = E_x^2 \left[ \left( \frac{\partial^2 \phi_0}{\partial x^2} \frac{\partial \phi_0}{\partial x} + \frac{\partial \phi_0}{\partial z} \frac{\partial^2 \phi_0}{\partial x \partial z} \right) \mathbf{e}_x + \left( \frac{\partial \phi_0}{\partial x} \frac{\partial^2 \phi_0}{\partial x \partial z} - \frac{\partial \phi_0}{\partial z} \frac{\partial^2 \phi_0}{\partial x^2} \right) \mathbf{e}_z \right], \quad (6)$$

Please replace paragraph [063] with the following amended paragraph:

$$[063] \quad \mathbf{E} \cdot \nabla \mathbf{E} \equiv E_x (g(x, z) \mathbf{e}_x + h(x, z) \mathbf{e}_z)^2 \quad (7)$$

Please replace paragraph [069] with the following amended paragraph:

[069] the particle is generally inhibited from crossing the ridge. The ratio  $\mu_{\text{DEP}} / \mu_{\text{EK}}$  is particle specific, thus this inhibition is selective for embodiments of the invention. The inhibition can also be tuned by adjusting the magnitude of the applied field in embodiments of the invention. The inhibition can similarly be tuned by adjusting the incidence angle  $\theta$ . Finally, the function  $g(x, z) / (\partial \phi_0 / \partial x)$  depends on the geometry of the ridge, which in some embodiments is set or affected by the method of fabrication. If the depth-wise electric field component introduced by the ridges can be ignored, as is the case in embodiments of the invention, Eq. 79 simplifies to

$$2 (\mu_{\text{DEP}} / \mu_{\text{EK}}) |\mathbf{E}| \cos \theta (\partial^2 \phi_0 / \partial x^2) < -1 \quad (10)$$

Please replace paragraph [070] with the following amended paragraph:

[070] This expression (8)(10) describes how to engineer corduroy microchannels according to embodiments of the present invention that selectively transport particles along the corduroy ridges. Two engineering controls are the local incidence angle of the ridge and the local ridge geometry (that sets  $\phi_0$ ). If the geometry of the ridge (thus  $\phi_0$ ) is fixed, there is a  $\cos \theta$  dependence of the inhibition threshold. If the geometry of the ridge varies with incidence angle, this relationship may have a more complicated angular dependence. Several embodiments of the present invention have ridge widths that vary with incidence angle. However, in these cases, the field concentrations occur local to an abrupt depth transition, minimizing the influence of the variation in ridge width, so the  $\cos \theta$  angular dependence is approximately retained.